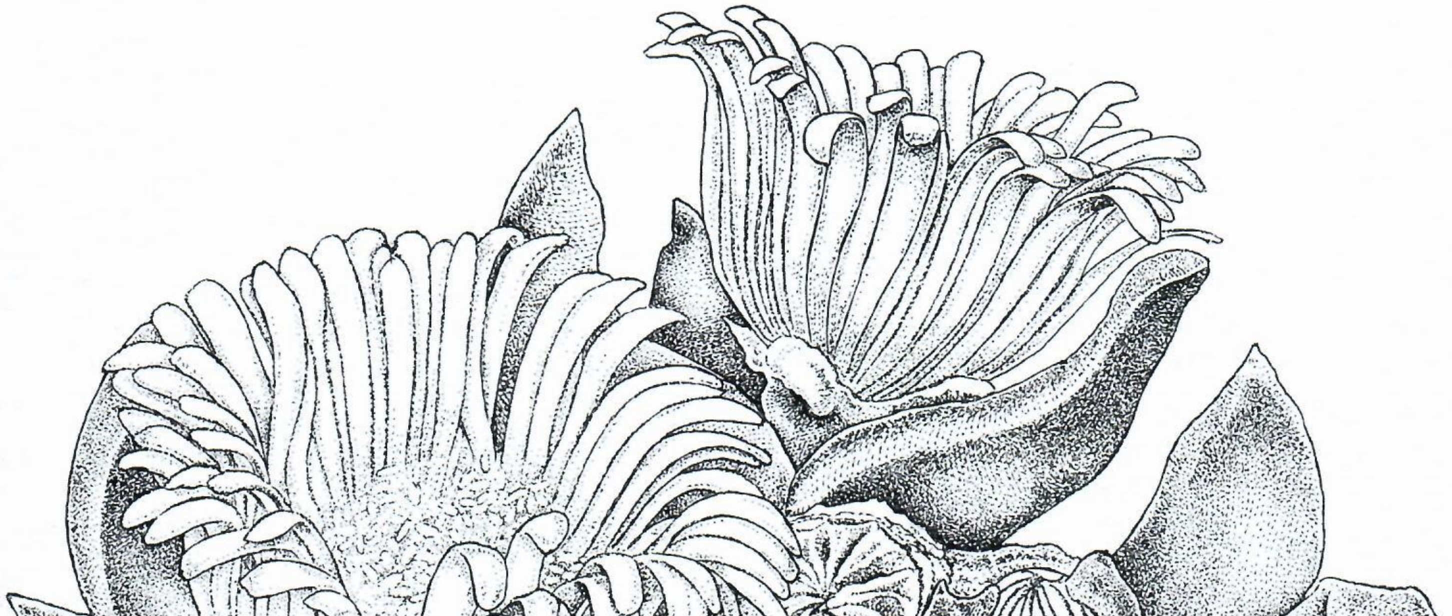
mesemb Study Group

BULLETIN



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Lithops identification – a guessing game?

I HAVE been growing *Lithops* for 15 years, a genus as small as it is endless. When I started, *Lithops* were not very well known in Spain, so 100% of my new acquisitions were *Lithops* sp. and I had to turn to the BCSS Forum to try to identify them. There I would post a photo and there was always someone willing to help me with the identification.

One of the first things I learned was that to have a good collection it is essential to buy well-identified plants from trusted suppliers. But at markets you sometimes come across beautiful unnamed temptations. It's so hard to resist! Especially when you are just starting to collect.

In a collection of *Lithops*, or of any plant in fact, having them identified is very important to get to know/study them and to keep an historical trace of their evolution and development. In fact, it is exactly the same reason why we give names to people. In my opinion, there are only two essential things on a plant label: a serial or ID number and its scientific name. The first serves to index everything related to that, and only that, plant. The second is also an index, but not exclusive to one specimen, but to all those that are like it.

Along with the serial/ID number, we can keep a record (in a database, a spreadsheet or on a simple piece of paper) of all the "personal data" of the plant: on what date it was sown (or purchased), who was the supplier, what it cost, when the last transplant was done, i.e. anything we can think of! Along with the scientific name, we don't need to register anything, because everything is documented in books and online: how we should take care of it, the habitat it comes from, studies and research, taxonomic information, i.e. anything that has been published!

Having correct identifications is the difference between having plants and having a plant collection. That's why, in July 2020, a few Spanish growers created a *Lithops* Identification Group. At first it was just a game, but over time the group ended up becoming a support tool for novice collectors. After five years helping to identify third-party *Lithops*, we have drawn some conclusions.

The first thing is to recommend that before asking anyone for help, you should try to identify your plant yourself. There is a lot of information on the Internet and the process is very simple: just compare your plant with photos of other *Lithops*. There are thousands and thousands of photos to look for similarities, but this abundance, instead of helping us, can be a real nightmare, since if we compare with photos that are wrongly identified, our identification will also be wrong. We will become more and more confused! The best thing is to impose some limitations on yourself. To begin the identification process, two, and only two, web portals are necessary.

The first is **www.lithops.info** where we find, in addition to lots of other useful *Lithops* info, a very extensive collection of photos (more than 400) of well-identified *Lithops* that can be viewed, either sorted by species or by Cole number. If our *Lithops* is neither a hybrid nor a cultivar, we will surely find a photo there that is very similar to it.

The ***Lithops* Identification Group** operates on Instagram in weekly sessions. Every Saturday we post nine photos of random *Lithops* and, for four days, group members give their opinion on the ID. The following Wednesday we count the votes received and communicate the result, in the form of commented percentages, to the owners of the *Lithops*. In the last five years we have held 240 sessions, identified more than 2,000 *Lithops* and, best of all, we've learned a lot.

The group is completely open, anyone can send in photos of unnamed plants and anyone can participate by helping to make the identifications. However, almost from the start, there have been about 10–12 people who vote regularly in each session. To avoid the votes of occasional participants, or those with little experience, from skewing the results, we only count the votes of people who have "correctly" identified 70% or more of the photos analysed, meaning that their identification matches the most popular identification.

LITHOPS ID

As for the degree of confidence in the final ID proposed by the group, this again is based on percentages of members in agreement:

- if there is more than 90% agreement we say that the identification is certain;
- between 80% and 90%, we consider it probable;
- between 50% and 80%, it's a possibility;
- less than 50% ... *Lithops* sp.!

We are fully aware that we do not always get the correct identification right, but most of the time we do. Sometimes we cannot give unique identifications and we transmit the opinion of the group in the form of various possibilities, each with its corresponding degree of certainty.

If our *Lithops* is a cultivar (and we haven't found it on www.lithops.info), the best option is the section dedicated to accepted cultivars in Keith Green's **Scrapbook Lithops** website. They are all there, with a photograph and a description. If we don't find a plant like ours on that website either, the plant is probably a hybrid. We have nothing against hybrid *Lithops*, but it is like a tutti frutti ice-cream. What fruit is a tutti frutti ice-cream made of? Who knows!

It sounds very simple, but it is not. Finding similarities between *Lithops* and photos is a subjective task and, therefore, the result can be arbitrary. Perhaps the best thing is to reason by elimination. We are talking about only 38 species and some of them have very peculiar colours and markings that make them unmistakable. For example, if we have a *Lithops dorotheae*, *Lithops coleorum*, *Lithops hookeri*, *Lithops otzeniana*, *Lithops vallis-mariae*, *Lithops verruculosa* or *Lithops werneri* it's very likely that we'll have no problem finding a very similar photo on www.lithops.info. Problem solved! Otherwise, we have already ruled out seven species and we only have 31 possibilities left.

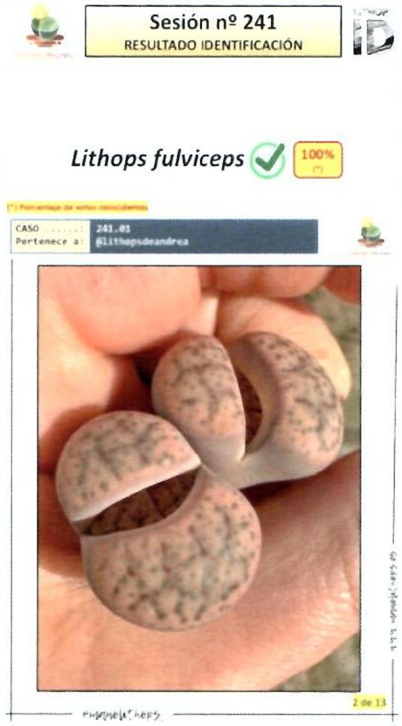

Fig. 1 Screenshot of a Lithops Identification Group results announcement

In general, when identifying a *Lithops*, it is best to focus on six essential aspects:

- **Size**: Is it small (less than 1.5 cm), medium (2–2.5 cm), or large (3–4 cm, or even larger)?
- **Shape**: Are the top of the leaves flat, slightly convex, or very convex?
- **Profile**: Is the fissure (the space between the two leaves) deep or shallow?
- **Colour**: Grey, brown, green, reddish, pink, etc.?
- **Pattern**: Are there "windows" (translucent areas), "islands", "channels", red lines, dots, etc. on the top of the leaves?
- **Texture**: Is the top smooth, rough, or "warty" to the touch?

Finally, to further refine our identification, there are two other factors that can also help, but we can only observe them at a certain time during the annual cycle of the *Lithops*:

- **Flowers**: Are they yellow, white, yellow with a white centre, or perhaps orange or pink? When do they bloom? before autumn, in autumn, or in mid-winter?
- **Seed capsules**: Do they have five, six, or more segments/ locules?

With this information and a good book containing detailed descriptions, we can make precise and secure identifications (one or both are recommended: *Lithops. Flowering Stones* by D.T. & N.A. Cole and *Lithops: Treasures of the Veld* by Steven Hammer).

In short, reasoning by elimination and applying a "divide and conquer" strategy, we can reach a concrete identification or, in the worst case, two or three possibilities to choose from. Time is usually our friend too: after a couple of years observing and pondering over our *Lithops*, the plant will often end up confessing what its real name is.

Some might say that what we have here is actually nothing more than a simplified key. They are right. For non-professional botanists, keys are often rather cumbersome but they certainly have their uses for identification. So the method outlined here for identifying *Lithops* may be somewhat less precise than a traditional key, but it is easier to apply... at least I hope so!

To be honest, the more I delve into the subject of identifying *Lithops* the more I learn but also the more doubts I have. Artificial Intelligence is of no real help at all, not yet anyway. So we end up back where we started—if we want to have a collection of well-identified *Lithops*, the only solution is to buy them from trusted sources... and then to trust that there have been no mix-ups with the labels along the way!

Fig. 2 Many *Lithops* have clearly recognisable patterns and textures, or their flowers and seed capsules can provide clues that aid identification, from left to right: *Lithops dorotheae, Lithops vallis-mariae, Lithops divergens* var. *amethystina, Lithops gracilidelineata* ssp. *brandbergensis*